SUPPLEMENTAL WORKING PLAN

Pilot Study of Three Insecticides for Preventing Attacks of the Mountain Pine Beetle in Lodgepole Pine

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INTRODUCTION

This is the second in a series of pilot studies to determine the efficacy of three insecticides--lindane, Sevin, and Dursban--in preventing attacks to high value lodgepole pine trees by the mountain pine beetle, Dendroctonus ponderosae Hopkins. The methods and operational procedures for the 1976 study will be essentially the same as those used during the 1975 test; the main deviation being that water formulations will be used instead of oil.

Preliminary results of the 1975 Study, which entailed treatment of three 200 tree groups of lodgepole pine to a height of 25-feet with 2% (by weight) oil-formulations of Lindane, Sevin 4-oil and Dursban, follow:

TREATMENT	NUMBER OF TREES								
	TREATED	ATTACKED 1/ Below 25' Ht.			ATTACKED Above 25' Ht.			EXHIBITING ABNORMAL RESIN FLOW	CHECK 2/ TREES ATTACKED
		FULL	STRIP	PITCH-OUTS	FULL	STRIP	PITCH OUTS		
LINDANE	200	0	0	1	2	3	5	189	99
DURSBAN	200	1	0	4	24	2	29	189	160
SEVIN	200	3	5	11	15	1	7	116	130

1/ Preliminary data: Successful attacks will not be confirmed until June, 1976.

2/ Each treatment tree was represented by an average of 5 check trees. In this summary at least 1 check tree was attacked. In many cases several check trees were attacked.

It is evident at this stage that all treatments provided excellent protection considering the high beetle population pressure exerted on the area. Cruise data taken from 30 trend plots surrounding the area revealed an attack intensity of 6 trees per acre in 1974 and 21 trees per acre in 1975, a three-fold increase.

Although excellent results were obtained, it was decided to preclude oil-formulations in future studies. Reasons for this departure follows:

1. There is more than ample reason to suspect that fuel oil has or will cause tree phytoxicity. Abnormal resin flow was recorded on the majority of treated trees with little or no resin flow observed on the check trees. The total number of trees or portions of trees affected will not be known until the summer of 1976 or 1977. The effect of the oil on the physiology of the trees is planned for study (See attached study).

2. Fuel oil caused extensive mortality of vegetation around the base of treated trees. This damage is not permanent, however, for most of the plants are annuals and will recover.

3. Continual contact with fuel oil sprays caused irritation to some personnel. Two individuals reported minor irritation. A third experienced a rather severe reaction resulting in lost time and necessitating medical treatment.

PLANS FOR 1976

The methods and procedures followed in the 1975 test will be generally adhered to in the 1976 study. A copy of the 1975 Working Plan is attached. The procedural changes from this basic plan follows:

1. Water mixtures will be used exclusively. All three insecticides will be diluted to a 2% (by weight) formulation.

2. 100-tree groups will be treated with each of the three insecticides instead of 200-tree groups. A resume of treatment follows:

No.	Formulation	Number of Lodgepole Pine Treated	Checks	Total
1	2% Lindane in H_2O	100	>100	> 200
2	2% Sevin in H_2O	100	>100	> 200
3	2% Dursban in H_2O	100	>100	> 200
	Total	300	>300	>600

3. The test area will be on the Targhee National Forest south of Henrys Lake. Lodgepole stands in Buffalo Campground and vicinity are so badly depleted by the beetle that adequate numbers of suitable size and spaced trees no longer exist.

   The specific test area will be picked in April, 1976.

4. No residual soil samples will be taken.

5. This pilot preventive study will be coordinated with other pilot studies and field tests in the western U.S. Since workers conducting the studies will be testing one or more of the same chemicals--Lindane, Dursban and Sevin--an effort will be made by each to purchase identical concentrate/formulations from the same manufacturers.

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Cost Estimate For 1976 Preventive Spray Pilot Study

INSECTICIDES

Sevin	15 gals. @ $10.00/gal.	$ 150.00
Dursban	15 gals. @ $47.00/gal.	705.00
Lindane	30 gals. @ $25.00/gal.	750.00
Nutri-sol	25 lbs. @ $ 1.00/lb.	25.00
		$1630.00

EQUIPMENT

600 metal tags	$ 75.00
4 rolls string @ $2.00/roll	8.00
200 wooden stakes @ $15/100	30.00
Assorted nozzles and fittings	100.00
4 rolls film and processing @ $12.00/roll	48.00
	$ 261.00

SERVICES

Rental of two 100 gal. low-pressure sprayer	$ 500.00

SALARIES AND TRAVEL

April-June 1976	$10,290.00
June-Sept. 1976	4,230.00
	$14,520.00

Total	$ 16,911.00